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ABSTRACT

The objective of two studies was to devise an assessment procedure for the evaluation of therapy with distressed marriages. An extension of behavior exchange theory was proposed to include phenomenological ratings by the couple of the intent of messages sent and the impact of messages received. Convergent criteria were used to select 14 unsuccessful couples and 14 successful couples for the two studies. In Study 1 the two groups of couples differed on the perceived positiveness of exchanged behaviors and on reciprocity as measured by conditional probabilities of positively and negatively valued exchange. On a task which permitted the assessment of effective resource utilization, unsuccessful couples utilized resources less effectively than successful couples. Study 2 was an extension of the results of Study 1 to a nonuniversity population of couples with greater demographic variation. The results of Study 2 replicated the pattern of results obtained in Study 1. The results of these studies provide discriminative criteria which can be used to evaluate therapeutic interventions with couples, and speaks for the usefullness of phenomenological behavior exchange theory for assessing successful marriage. (Author/PC)

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Abstract

The objective of two studies was to devise an assessment procedure for the evaluation of therapy with distressed marriages. An extension of behavior exchange theory was proposed to include phenomenological ratings by the couple of the intent of messages sent and the impact of messages received. A device called a "talk table" was used for rating intent and impact. Couples made decisions on a variety of tasks presumed to induce varying degrees of conflict, from ranking a set of new car colors to resolving an existing personal issue. Convergent criteria were used to select fourteen unsuccessful couples (seeking marital counseling from a mental health agency and low scores on the Locke Marital Relationship Inventory (MRI) and fourteen successful couples (answering an advertisement for "mutually satisfying" marriages and high MRI scores). In Study I the two groups of couples differed on the perceived positiveness of exchanged behaviors ("impact") and on reciprocity as measured by conditional probabilities of positively and negatively valued exchange (quid pro quo). On a task which permitted the assessment of effective resource utilization, unsuccessful couples utilized resources less effectively than successful couples. Study II was an extension of the results of Study I to a non-university population of couples with greater demographic variation. An independent sample of thirty couples were selected from the catchment areas of two community mental health centers. These couples were older, had been married longer and varied more widely in education, income and residential status than the couples in Study I. The results of Study II replicated the pattern of results obtained in Study I. It is suggested that the results of these studies provide discriminative criteria which can be used to evaluate therapeutic interventions with couples, and speak for the usefulness of phenomenological behavior exchange theory for assessing successful marriage.

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Phenomenological behavior-exchange models of marital success[1].

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There are two major research traditions in the study of marital success. The older literature is primarily sociological. It has searched for variables able to predict marital success in longitudinal studies (Burgess and Cottrell, 1939; Burgess and Wallin, 1953; Locke, 1961) and to discriminate successful from unsuccessful marriages in cross-sectional studies (Navran, 1967). This literature has grown so large that summaries of summaries have already appeared in print (Broderick, 1971). Although variables have been identified which predict marital success, there has been no theoretical scheme proposed to explain why these particular variables should have predictive or discriminative power. In fact, the literature has suggested that the state of the art is such that only "conceptual frameworks" of marital success as opposed to theories can be identified (Hill, 1966).

Although sociological studies of marriage have suggested that counselors and therapists utilize their findings, there has been no systematic investigation of variables likely to lead to therapeutic interventions. A smaller and more recent literature has come from a group of family psychotherapists who initially operated from a cybernetic view of communication processes in the study of normal families and families with a schizophrenic member (Watzlawick, Beavin, and Jackson, 1967). Therapists who have studied marital communication have developed a rich language for concep-

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tualizing successful communication. This language, unfortunately, has proved difficult to operationalize and its hypotheses have yet to be tested. A byproduct of this state of affairs is that it has recently become fashionable for marital therapists to assume that the basic principle of successful marriage is reciprocity or a "quid pro quo" arrangement (Lederer and Jackson, 1968; Stuart, 1969; Weiss, Hops, and Patterson, 1973; Rappaport and Harrell, 1972; Azrin, Naster, and Jones, 1973). Therapy programs with the quid pro quo as the fundamental assumption have been designed to teach couples the principles of negotiating exchange agreements. This assumption has yet to be tested. Some couples-therapy studies have also confounded treatment variables with outcome variables. For example, for Stuart (1969) successful marriage involves a quid pro quo arrangement; in his therapy program couples negotiate quid pro quo agreements; the measure of success is also based on the negotiation of these agreements.

There is some evidence that decision making is of fundamental importance in marital success. The variables which have been used in most of the research to date in marital success have been successful in accounting for nearly thirty percent of the variance in marital success, measured by both stability of the relationship and self-report of satisfaction (Burgess, Locke, and Thomas, 1971). However, an interesting pattern of results can be observed in this voluminous literature. For example, the sheer frequency of sexual activity does not discriminate couples on either dimension of success, stability or satisfaction. In short, there does not seem to be an optimal frequency of sexual activity. However, the discrepancy between actual and desired frequency has been found to be a powerful predictor in both longitudinal and cross-sectional studies (Burgess, Locke, and Thomas, 1971). A similar pattern of results can be observed on other variables studied in the sociological tradition: values (David, 1967); children

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(number and spacing) (Christiansen, 1968; Luckey and Bain, 1970); income (Levinger, 1965); and a host of personality traits (Tharp, 1963). In each case prediction of success is increased by using perceived discrepancy between ideal and actual states, and by using interspouse agreement. These results suggest that some phenomenological aspect of consensual processes may discriminate successful from unsuccessful marriages, but they fail to provide a model for studying precisely what aspects are operative in actual interaction between spouses during decision making.

One way of viewing a relationship has been suggested by the social psychology literature on behavior exchange (Thibaut and Kelley, 1959; Gergen, 1969). In this view a relationship is seen as an economy where behaviors are exchanged. The husband (h) has a repertoire of behaviors (h_1, h_2, h_3, . . .) and the wife (w) has a repertoire (w_1, w_2, w_3, . . .). A matrix to represent the exchange has elements p_{ij} which represents the payoff of the exchange ($w_i \leftrightarrow h_j$) for the husband, and p'_{ij}, the payoff of the exchange for the wife. Unfortunately, although the behavior exchange model has great conceptual appeal for investigating decision making processes, it has little utility as it currently stands for studying systems as complex as a marriage. For example, Gergen (1969) wrote, "Working with the entire behavioral repertoire of two persons and gauging the satisfactions for each behavior for each of the parties would not only be cumbersome, but at present the measurement problems would be insurmountable (p. 39)." Indeed, investigators using the behavior exchange model, who have primarily studied the interaction of strangers, have tended to both limit the response alternatives available to the dyad and to experimentally control the payoffs of the exchange matrix. Gergen (1969) continued, "A most promising way to proceed thus might be to collapse the spectrum of behaviors available to the two persons and to arrange the situation in such a way that the

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satisfactions engendered by each behavioral alternative are specified by the experimental situation (p. 39)." Unfortunately, this procedure is likely to increase the triviality of the situation confronting the couple, and to run the risk of learning little about the way they usually communicate. Although Gergen suggested that the approach might be fruitful, the paradigm suggested by Thibaut and Kelley in 1959 had not been applied to the study of marriage until Speer (1972). Speer studied sixty clinic and sixty P. T. A. couples in an extension of the Prisoner's Dilemma Game. None of the four response variables discriminated the two groups of couples on four forms of the game.

What seems to be needed is a paradigm which will permit the couple access to their entire behavioral repertoire across a variety of decision making tasks. It may also be important to devise a paradigm in which the members of the dyad, rather than the experimenter, assess the payoffs of behaviors exchanged.

To meet the requirements, a modification of the behavior exchange model is proposed in this paper. This model is called a phenomenological behavior exchange (PBE) model. It modifies the economic view of exchange to introduce the notion of value into the exchange. In a marketplace the seller places a value on the object put up for sale. The buyer, however, may assign a value different from that intended by the seller. In a marital dyad the speaker is viewed as having an intention of what he or she wishes to communicate. The message sent then has an impact on the listener. This impact may or may not match the positivity or negativity intended by the speaker.

Using the PBE model, many of the alternative definitions of successful communication that have been proposed in the literature can be tested. For example, it may be suggested that a quid pro quo discriminates success-

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ful from unsuccessful couples. This could be operationalized by using a "talk-table" in which each spouse rates the positivity of intent of a message he sends and the other spouse then rates the positivity of the impact of the message received. The quid pro quo hypotheses are that (a) in a successful marriage there is a higher conditional probability of a positive impact given that a positive impact has just occurred ($p(H+ \mid W+)$ and $p(W+ \mid H+)$, positive quid pro quo), and (b) in a successful marriage there is a lower conditional probability of negatively valued exchanges ($p(H- \mid W-)$ and $p(W- \mid H-)$, negative quid pro quo), compared to unsuccessful marriages. If the impact of messages is rated

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as positive, neutral or negative by each spouse, a 3 x 3 Markov transition matrix (Raush, 1972) is suggested with eighteen elements, nine for each order of exchange (H↔W and W↔H, see Figure 1). In addition, other definitions of marital success can be studied. Intent differences, impact differences, and intent-impact discrepancy can be studied as discriminative variables. For example, using the intent-impact discrepancy hypothesis, successful communication would be defined as having occurred when a speaker had the impact he or she intended, whether the impact be positive or negative. In a study of interpersonal attraction processes in strangers, Aronson and Linder (1965) suggested that a negative-to-positive sequence should be more positive than a positive-to-negative sequence. Aronson (1972) suggested that honesty in intimate relationships would be observed as increased variance in how positively interactions are evaluated in a sequence. These hypotheses suggest that movement from negative to positive impact in a decision-making task and the variance of impact should both be greater for successful marriages than for unsuccessful.

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The situation as a source of variance

Perhaps another major aspect of marital success has been as ignored as the situational context of the research itself. For example, Reiss (1967) places no importance on the tasks we chose for families to work on. We can expect that a considerable proportion of the variance in marital success will be accounted for by situational variables. This point has been made cogently by Mischel (1968) in reviewing the literature on personality and assessment. There seems to be consistency to human behavior only to the extent that different situations have similar role demands.

On the other hand, most of the research reviewed by Mischel has involved the study of intimate relationships or ongoing organizational systems. Such systems may exhibit a great degree of cross-task stability, perhaps because they require a consistent repertoire of roles with stable interaction rules. Jacob and Davis (1970) reported considerable stability across experimental tasks in the structure, duty and interruptions in father-mother-child interaction. Jacob and Davis used a Play Together Task, a set of TAT cards for construction of a group story, and an Unrevealed Differences decision-making task.

The dimension of induced conflict has been ignored in the assessment of situational factors. It would seem important, for example, to ascertain whether successful couples can be discriminated from unsuccessful couples as easily when they are role ordering a set of vegetables to have for dinner as when they are discussing an important unresolved personal problem.

Definitions of marital success

Three major methods have been used to define marital success. First, self-report inventories of marital happiness, satisfaction, perceived stability, and adjustment have been used (Terman, 1938; Locke, 1951,

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Burgess and Cottrell, 1939). Second, the extent to which a couple is problem-ridden and the perceived severity of the problems have been used as an index of marital success (Mitchell, Bullard, and Mudd, 1962; Mathews and Milhanovitch, 1963). Third, whether or not the couples or families are known to public agencies, for example, divorce courts, marriage counselors, or juvenile delinquency authorities, has been used as a criterion of marital success. Burgess and Wallin (1953) suggested that a general factor of marital success be defined on the basis of correlations in the high 80's and low 90's between Locke's measures of happiness and the Burgess-Cottrell measures of adjustment. Subsequent research has borne out this conjecture. The terms "happiness," "satisfaction," and "adjustment" can be used interchangeably when employing any of the self-report inventories. Method variance has not been systematically controlled in this research. However, inventories have been developed which are moderately predictive ($r = .47$) of marital stability in longitudinal studies using divorce as a criterion (Terman and Wallin, 1949). Hence, self-report criteria may converge with the stability of the marital dyad used as a criterion.

Mathews and Milhanovitch (1963) dichotomized 984 Catholic couples into two groups on the basis of their responses to the Burgess-Wallin scale of marital happiness. The unhappy couples checked more items on a 400 item checklist of marital tension. Hence, the problem-ridden criterion may converge with self-report criteria. Mitchell, Bullard, and Mudd (1962) found strong significant differences in the proportion of clinic and nonclinic couples with specific problems on a problem checklist. They found that for each problem area a greater proportion of clinic couples checked that area as a problem. Interestingly, they found that the rank ordering of the severity of different problems was nearly identical within groups. It may

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be that marriages need to cope with a fairly standardized set of problems and differ in the extent to which they are able to do so.

Navran (1967) compared couples seeking marital counseling to other couples in the same worker's union. Clinic and non-clinic couples differed significantly on the Locke Marital Relationship Inventory (MRI). Calculating Hay's omega-squared statistic from Navran's data indicates a biserial correlation of .90 between MRI scores and whether or not a couple is seeking psychiatric assistance.

To summarize, although no research has been directly addressed to a systematic answer to this question, it seems that the three major operations for defining marital success form a convergent network in the Webb et al (1966) sense. Despite this conclusion, it would be advisable to use more than one operation in conjunction. For example, within couples seeking marital counseling there is likely to be an enormous range of problematic behavior, from a single-issue problem of recent origin to a multi-issue complex of problems of high chronicity. Even programs designed to treat only sexual dysfunction use a stringent screening procedure. For example, Lo Piccolo and Lobitz (1973) accept only couples referred by established community agencies, couples who have strong emotional relationships, high scores on the Locke-Wallace (MRI) scale of marital adjustment, non-psychotic scores on the MMPI, and unstated criteria based on a brief evaluation interview. Masters and Johnson (1970) describe similar, though less precise screening criteria. It may be that these therapists have some reason to discriminate among clinic couples. A more homogeneous group of unsuccessful marriages would probably be obtained using the clinic/nonclinic criterion in conjunction with low MRI scores (predictive of divorce if no intervention occurs).

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STUDY I

Method

Subjects

The subjects were two groups of 15 married couples, making a total of 30 couples. Fifteen couples (called the successful couples) responded to a news letter announcement asking couples to phone the psychological clinic if they classified their relationship as "mutually satisfying" and were willing to discuss it with an interview team. The announcement read as follows: "Help us! We'd like to attract the attention of two kinds of married couples. Type 1: Those couples who feel their relationships are functioning pretty well. Not that they have no problems but that they feel they can deal with their problems fairly well. We would like to talk to you about what you do to keep your relationship intact, how you solve your difficulties so we can help other couples. We have a small grant which permits us to pay you $10 for your participation. Type 2: Those couples who are having difficulty solving their problems or are experiencing communication difficulties and would like help. We are setting up an experimental counseling facility at the IU Psychological Clinic to help you. We would like to be of assistance to you. We have a small grant to pay you $10 for your participation."

In addition, unsuccessful couples were also recruited from local community and campus counseling centers. Of the fifteen unsuccessful couples who participated in this study, eleven were referred from this source while four responded to the news letter announcement.

To implement the convergent criteria recommendation of this paper, the unsuccessful couple with the highest average MRI scores and the successful couple with the lowest average MRI scores were eliminated from the statistical analysis.

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The average ages of successful couples were: husbands - 26.7 years, wives - 24.6 years. Average ages of the unsuccessful couples were: husbands - 26.1 years, wives - 23.7 years. Average number of years married for both successful and unsuccessful couples was identical - 2.9 years.

Four unsuccessful and two successful couples were working couples. The remaining 24 couples were student couples (defined as at least one spouse enrolled in school full time).

Apparatus

The apparatus was a double sloping table positioned between the couple and resting on a table. Each spouse had access to two rows of five buttons, one row on the left (labeled "rate own statement") and one row on the right (labeled "rate spouse's statement"). The buttons were labeled from left to right as "super negative," "negative," "neutral," "positive," and "super positive". A toggle switch, controlled by the couple, signaled via a small light which member of the couple was permitted to speak. Two metal shields prevented the couple from seeing their spouse's ratings. Lights on the side of the "talk-table" displayed the couples' ratings to a Panasonic video tape system which recorded the ratings and all of the couples' communication. The video tape equipment was unobtrusively located behind a curtained glass window that separated the experimental room from an observation corridor.

Procedure

Interview teams were composed of one male graduate student in clinical psychology and one female undergraduate. There were four such teams and each couple was interviewed by one of these teams. Each couple came to the Indiana University Psychological Clinic for three separate interviews.

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First session. The first interview, identical for all couples, was conducted in one of the Indiana University Psychological Clinic interview rooms. Couples were given a brief description of the research project along with a flow-chart outlining the procedure. The couple was then asked to read and sign a consent form informing them that no therapeutic assistance would be offered. The couple then completed a demographic information sheet and a set of questions concerning their relationship. Three standardized forms were administered independently to each spouse, the Locke Marital Relationship Inventory (MRI), the Navran Primary Communication Inventory (PCI), and a form asking each spouse to rate the perceived severity of a list of problem areas. The couple was then asked to jointly agree on the three most salient current problem areas or areas of disagreement in their marriages. The couples were then asked to describe each of the problem areas separately and to provide a play-by-play account of an incident, providing situational context and a typical conversation illustrating each problem. Before the couple completed the first night interview, they were given a homework assignment. They were requested to keep a critical incident diary and to make a tape recording at home of a discussion that worked towards a mutually satisfactory solution of a problem area that was randomly selected from one of the three previously listed. A cassette tape recorder and audio cassette was given to the couple.

Second and third sessions. The second and third nights varied according to whether the couple was assigned to either the "talk-table" or no "talk-table" conditions for this session. Both these interviews were conducted in a comfortably furnished research laboratory. There were two sets of five tasks: (1) the choice questionnaire (Haley, 1964) was a consensus decision-making task which required an agreed-upon rank ordering of personal preferences using lists such as new cars or breeds of dogs;

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(2) two sets of three cards (TAT cards) (Locke, 1961) required the couple to agree on one story for each set of cards; (3) two tasks with an accuracy criterion were administered first individually and then again for consensual ranking. One task (called NASA) involved rank-ordering fifteen items for their survival value for a life and death trip on the moon. Correct answers had been supplied by the National Aeornautics and Space Administration. The other task[2] (called Food) involved rank-ordering ten items according to their nutritional value. Correct answers had been supplied by a nutrition specialist at Indiana University. A pilot study with 147 undergraduates, conducted to determine if there was a sex bias to the tasks, revealed no significant sex differences in knowledge for either of the tasks. (4) The Inventory of Marital Conflict (I.M.C.) (Olson and Ryder, 1970), a high-conflict consensus decision making task, presented the couple with a short vignette and required them to agree on who is primarily responsible for problem described. (5) The couple was asked to discuss two current problems they had agreed were most salient in the first session, and to try to come to a resolution of these problems. There were ten problems in all, two problems in each set. One problem was randomly assigned to either second or third night. Within each session the five tasks were randomly ordered, with the exception that the TAT always followed the choice problem. The choice problems, the rank-order problems, and the inventory of marital conflict initially required the couple to individually complete the task. They were then provided a third answer sheet and required to arrive at a joint decision for each task. After each joint decision, each spouse independently rated his (her) satisfaction with the joint decision. In addition, the rank-order problems also required the couple to again complete independent answer sheets following the joint agreement. The couple's communication and ratings made while completing the joint form were video

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recorded. Es were present in the room only to collect answer sheets and to give instructions.

Talk-table session. The couple was met in the Psychological Clinic waiting room and brought to the laboratory. They were then seated on opposite sides of the talk-table and given the following instructions: While you are talking this evening we would like you to be using our "talk-table." You will notice a toggle switch (E points to toggle switch). You may talk only when the toggle switch is facing you. The small light (E points to light) will be on when the toggle switch is on your side. Each time you finish speaking, your statements will be rated by yourself and your spouse in the following manner. The row of buttons on your right is to be used to indicate your reaction to your spouse's statement, while the row on your left is to be used to indicate how you would like your spouse to rate your statement. An example will help to clarify this:

H: 1. Speaks
2. Rates his own statement (row on left)
3. Pushes toggle switch to wife

W: 1. Rates H's statement (row on right)
2. Speaks
3. Rates her own statement (row on left)
4. Pushes toggle switch to husband

H: 1. Rates W's statement (right)
2. Speaks
3. Rates his own statement (left)
4. Pulls toggle switch

We'd now like to explain the meaning of the five buttons. The super negative should not be used lightly but should be used in response to a statement that really hurts you. The negative button stands for a statement

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that you find unpleasant, insulting or somehow negative. The neutral button represents a statement that you find neither positive or negative. The positive and super positive buttons are the counterparts to the negative and super negative. That is, the positive button should be used to respond to a pleasant, enjoyable, or pleasing statement, while the super positive should not be used lightly but should be used to indicate a statement you feel was extremely enjoyable or satisfying.

Each couple was then asked to have a conversation using the talk-table in order to familiarize themselves with its use. When the couple indicated they were comfortable with the talk-table, the experimental tasks began.

Non-talk-table session. The couple was met in the Psychological Clinic waiting room and brought to the lab. They were then seated on opposite sides of a small table. The talk-table was out of sight during this session. Except for the absence of the talk-table and alternate forms of the five tasks, this session was identical to the talk-table session.

Debriefing. After the second session, the couple was thanked for participating and scheduled for the third session. Following the third session, the Es briefly explained the goals of the project, answered any questions, and offered the couple the opportunity to view the video equipment and to view themselves on tape.

Results

Intent and impact

The five impact buttons and the five intent buttons in this study were viewed as five point Likert scales ranging from 1 (superminus) to 5 (superplus). Four separate 2 x 5 repeated measures analyses of variance were performed to test for task main effects (the five tasks were the discussion of an individual problem area to consensus, rank-ordering problem, choice

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problem, TAT, and the IMC), group main effects (the two groups were unsuccessful and successful married couples) and a task X group interaction. The results are shown in Table 1. These results indicate that there

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are no intent differences between the two groups of couples, but that there are differences in impact for the husbands and wives and that these differences are consistent across all five decision-making tasks. There was no task effect or group by task interaction. The successful couples view their spouse's statements more positively than the unsuccessful couples.

To assess the relationship between talk-table impact data and marital success, the relative frequencies of each button press, clinic or non-clinic status, and scores on the Locke MRI were analyzed using principal components analyses. For husband impact data the first component accounted for 49.36 percent of the variance; for the wives, the first component accounted for 46.41 percent of the variance. Table 2 presents these results. These

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data show convergence among these three operations for measuring marital success.

The discrepancy between intent and impact was computed for each task. Husband discrepancy was defined as |(H intent - W impact)|. Wife discrepancy was defined as |(W intent - H impact)|. An analysis of variance to test for a group effect, a task effect, and a group x task interaction was performed on H discrepancy and on W discrepancy. For the measure |(H intent - W impact)| there was no group effect or group x task interaction, but there was a significant task effect ($F(4,104) = 2.53$, $p<.05$). For the measure |(W intent - H impact)| the group effect ($F(1,26) = 3.21$, $p<.082$), the task effect

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($F(4,104) = 2.39$, $p<.055$), and group x task interaction ($F(4,104) = 2.42$, $p<.053$) were all marginally significant.

Aronson variance hypotheses

Husband and wife intent and impact variances were computed across all tasks. There was no significant difference in husband intent variance between groups ($F(1,26) = 2.51$, $p=.12$) or in husband impact variance ($F(1,26) = 1.93$, $p=.17$). The means were in the direction opposite to that predicted. The same pattern of results were obtained for the wife's variance; for intent variance ($F(1,26) = .001$, $p=.98$; for impact variance $F(1,26) = .16$, $p=.69$).

Movement from negative to positive impact during the course of decision making was assessed by dividing the sequence of impacts into halves, summing the impacts for each half, subtracting and dividing by the total number of impacts. For example, the sequence - - - | + + + would give $(+3 -(-3))/6 = 1.0$. For husbands there were no significant differences ($F(1,26) = 1.85$, $p=.18$), and the same pattern of results were true for wives ($F(1,26) = .52$, $p=.51$).

Conditional probabilities

Conditional probabilities were calculated over all interactions for the impact data for each couple. Table 3 summarizes the results of these

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analyses. The significant results can be summarized in the following way. For p(H + | W +), after he has just said something that she found positive, she is more likely to say something he will find positive in the successful couples. For p(H - | W -) and p(W - | H -), there is a greater likelihood for reciprocal negative exchange in unsuccessful couples. For p(W0 | H -),

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after she has just said something he considers negative, in unsuccessful couples he is more likely to say something that she will consider neutral. For p(H - | WO), after he has just said something she considers neutral, she is more likely in unsuccessful couples to say something that he considers negative. This suggests that a negative interlocking cycle H - → WO → H - is more likely for unsuccessful couples.

Problem solving effectiveness

Two problems were designed with an accuracy criterion so that scores on these tasks reflect deviation away from the correct answers. Each spouse completed the task individually before arriving at a joint decision. Thus a zero score represents perfect performance. To obtain a measure of problem solving effectiveness, the couple's best individual score on the task was subtracted from their joint score. The resulting statistic reflects the couple's use of individual resources in a problem solving situation which requires a joint decision. The group means for the food task were: successful couples +1.43, unsuccessful couples +5.86. The positive values of the means indicate that neither group, on the average, jointly surpassed the performance of their most knowledgeable member. The results of a t-test performed on these group means lend support to the hypothesis that the successful couples were able to use their resources more effectively than the unsuccessful couples ($F(1,26) = 6.96$, $p<.01$). Similar analyses on the NASA task revealed no differences between the groups.

To understand why differences in resource utilization were observed on one task and not the other, a study was done to test the hypothesis that although males and females do not differ in knowledge on either task, wives are far less confident on the space task, and therefore are willing to argue more on the food task.[3] This may enhance differences in resource

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utilization in the groups. To test this hypothesis, both tasks were readministered to undergraduates in a course in Abnormal Psychology. This study showed differences as predicted, i.e., there were no differences in knowledge but there were differences in confidence ratings on the space task (mean confidence for women = 5.41, mean confidence for men = 6.61 on a nine-point scale, ($F(1,68) = 4.66$, $p=.03$).

Discussion

This study indicates that talk-table variables based on a phenomenological behavior-exchange conceptualization do discriminate between groups of successful and unsuccessful marriages. Furthermore, perceived impact forms a unidimensional construct with the Locke MRI, which is predictive of marital stability. The talk-table data indicates that for unsuccessful couples (a) impacts are consistently less positive, (b) positive quid pro quo exchanges are far less likely (20 percent for unsuccessful and 33 percent for successful couples), (c) negative exchanges are more likely (12 percent as compared with 3 percent), and (d) they are more likely to become engaged in the negative feedback loop ... $WO \rightarrow H - \rightarrow WO \rightarrow H - . . .$, and (e) there is no difference in movement from negative to positive impact or in the variance of impact relative to the successful couples as suggested by Aronson. On a resource utilization task, when the wife and husband are equally confident of their points of view, unsuccessful couples do not utilize the resources available to them as well as successful couples. Therefore, a systemic model of successful marriage which is based on the couples' evaluation of the stream of behaviors exchanged has been shown to have discriminative validity.

The absence of a situational effect was surprising but consistent with the findings of Jacob and Davis (1973) who found that family interactions

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(talk and interruptions) were not significantly altered across three experimental tasks. This initial study clearly requires replication since a large number of analyses were performed with a small sample size. Extension to the other groups of couples with greater demographic variation is also essential. The second study of this paper was designed to accomplish these purposes.

STUDY II

Method

Subjects

An independent sample of 14 unsuccessful and 16 successful couples were recruited for participation in the research project (N=30). All unsuccessful couples were seeking therapeutic assistance at either of two community mental health centers and were referred to the research project by the therapists. The successful couples responded to a press release that briefly described the project and that offered $10 to volunteers. An average score below 100 on the MRI was set to disqualify successful couples from participation in the experiment; however, it was not necessary to disqualify any couple on this basis. The average ages of successful couples were: husbands - 32.3 years, wives = 30.5 years. Average ages of the unsuccessful couples were: husbands - 33.6 years, wives - 32.1 years. Thus on the average the successful couples of Study II were 3.8 years older than the successful couples of Study I; while the unsuccessful couples of Study II were on the average 8.0 years older than the unsuccessful couples of Study I. The successful couples were married an average of 8.2 years, the unsuccessful couples an average of 9.9 years. The couples of Study II were married about three times longer than the couples of Study I. Nine of

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the 14 unsuccessful couples and 6 of the 16 successful couples were from a rural district, the remaining couples were from a small urban setting. In the unsuccessful group all but two husbands finished high school, while only three attended college. In the successful group all husbands graduated from high school and all but two attended college. Five of the 14 unsuccessful wives did not complete high school and only three attended college. All of the successful wives graduated from high school and eleven attended at least one year of college. Average yearly income for the unsuccessful couples was $10,000, while the average for successful couples was $14,000. In contrast to the student couples of Study I, the couples of Study II are clearly working couples with only one successful husband and one successful wife still attending school.

Procedure

Based upon the results of Study I, the procedure was modified as follows. First, two tasks were selected; the IMC was selected as a high-conflict task, and the FOOD task was selected as a low-conflict task. The FOOD task was selected since (1) data had been obtained on the absence of sex differences in knowledge or confidence, and (2) the resource-utilization result of Study I could again be tested. Experimenters had observed that the FOOD task induced a low degree of conflict, whereas the IMC induced a high degree of conflict in both groups of couples. The IMC was expanded to include three additional vignettes and so a sufficient sample of interactions could be ensured for stable estimates of the conditional probabilities of Figure 1.

All sessions were conducted at one of two community mental health centers nearest the couple's residence. Each session began identically for all couples and as outlined above under "first session." After completion

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of the play-by-plays the talk-table was introduced to the couple. Due to the small variance in intent responses in Study I, it is possible couples misunderstood the talk-table instructions. To clarify the use of the talk-table, the instructions were modified to include a specific example of exchanged behaviors. Thus the subjective value of an apple and a pear were used to symbolize the exchange of messages across the table. After the couple became familiar with the table the two experimental tasks began. The order of the two tasks (6 I.M.C. vignettes and the FOOD rank ordering) was randomized within successful and unsuccessful couples. Since the focus of Study II was upon talk-table interactional patterns, a non-talk-table condition was not included.

Following completion of all tasks the couple was debriefed and thanked for participation.

Results

Intent and impact

Again treating the five impact buttons as a five-point Likert scale, a repeated measures analysis of variance was performed to test for task main effects (the two tasks were FOOD rank ordering and I.M.C.), group main effects (the two groups were successful and unsuccessful married couples), and a task x group interaction. The results are shown in Table 4. There

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Insert Table 4 about here
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is a significant group by task interaction in Likert impact scores for both husbands and wives. There were no significant impact differences either across groups or across tasks. There were again no intent differences for both husbands and wives.

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To study the obtained interaction effects, four separate univariate analyses of variance were performed to test for group main effects in husbands and wives Likert impact ratings on the I.M.C. task and on the FOOD rank ordering task. These results indicate that there are no differences in impact for the husbands and wives on the FOOD rank ordering task, but that there are significant differences in impact for the husbands ($F(1,28) = 11.31$, $p<.003$) and for the wives ($F(1,28) = 5.75$, $p<.025$) on the I.M.C. task. Thus the group x task interaction noted above may be stated as follows: On a more personally involving high conflict task (I.M.C.) the unsuccessful couples view their spouse's statements significantly more negative than do the successful couples, while on a low conflict task (FOOD rank ordering) there are no differences in impact between the two groups of couples.

The discrepancy between intent and impact was computed as in Study I on the I.M.C. task and on the FOOD task for the husbands and for the wives. There were no group effects for both H discrepancy and W discrepancy on the FOOD task. On the I.M.C. task, there was greater discrepancy in unsuccessful couples than in successful couples for both H discrepancy ($F(1,28) = 4.54$, $p<.04$) and W discrepancy ($F(1,28) = 3.62$, $p<.07$). Unsuccessful couples show a greater discrepancy between intent and impact than do successful couples in the high conflict I.M.C. task, while there are no differences between groups on the low conflict FOOD task.

Conditional Probabilities

As in the first study, conditional probabilities were calculated over all interactions for the impact data of each couple. Table 5 summarizes

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the results of these analyses. The significant findings of this analysis can be summarized in terms of quid pro quo exchanges. For (H + | W +) and P(W + | H +) there is a greater likelihood for reciprocal positive exchanges in successful couples. For (H - | W -) and P(W - | H -) there is a greater likelihood for reciprocal negative exchange in unsuccessful couples.

Problem solving effectiveness

This analysis was based on the FOOD rank ordering task as in Study I. Results of a t-test performed on group problem solving effectiveness scores revealed no differences ($F(1,28) = .18$, $p < .70$).

Discussion

The two studies presented in this paper provide strong support for the PBE model of marital success. Study II suggests that successful marital relationships are characterized by more positive impact in exchanges than are unsuccessful relationships, while unsuccessful relationships are characterized by more negative impact in exchanges. Reciprocity of positive impacts (p(W + | H +) and p(H + | W +)) is greater for successful couples while reciprocity of negative impacts (p(W - | H -) and p(H - | W -)) is greater for unsuccessful couples. In addition, successful couples tend to show less intent/impact discrepancy than do unsuccessful couples. These findings provide a conceptual basis for a definition of successful communication in marriage.

Since the impact scores and the quid pro quo discriminate between successful and unsuccessful marriages, a further advantage of the PBE model is revealed. The phenomenological nature of the PBE methodology argues against using external judgements of marital success alone. This has the ethical implication that the couple need decide the extent to which

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the marriage is functioning successfully. It is conceivable that, for example, a sadist married to a masochist would form a successful exchange system, despite judgements of individual psychopathology. The PBE model thus constitutes a systemic assessment device; the model also provides a parsimonious description of successful marriage without complex taxonomies of marriage (e.g., Cuber and Harroff, 1965). Whatever the marital contract then, the utility of the contract is evaluated by the PBE model in terms of the perceived positivity and the reciprocity of the behaviors exchanged. The talk-table measures thus form a basis for the evaluation of marital therapy interventions.

The presence of situational differences in the second study and their absence in the first study suggests the hypothesis that the FOOD rank ordering task was a different kind of task for the couples of Study II. Considering the role demands of housewives and working husbands of Study II, the FOOD task may have been similar to the space task for the married college students of Study I. Husbands in Study II may have had as little confidence in their knowledge of nutrition as wives in Study I had of their knowledge of the moon. However, it may also be the case that the unsuccessful couples who have stayed married longer (approximately ten years in the second study and three years in the first study) may have learned to exchange more positive messages on low conflict tasks, but not on high conflict tasks.

Further investigation is necessary to study length of marriage as a factor in marital success. Uhr (1957) reported that over all 72 variables studied in marriages followed for eighteen years, couples unhappy after eighteen years had become less similar whereas happy couples had become more similar. Thus, husband-wife discrepancy between the two groups of couples in Uhr's study increased over eighteen years of marriage. This

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finding was supported in the present investigation by larger differences between the two groups in Study II compared to Study I on impact scores.

Similarly conditional probabilities for positive exchanges are greater in successful couples in Study II than in Study I ($p(W+ \mid H+) = .32$ in Study I and .42 for Study II; $p(H+ \mid W+) = .33$ in Study I and .43 in Study II). Conditional probabilities of negative exchanges are essentially the same in the two studies.

It is interesting that in Study I of this paper the wife's impact scores were a better discriminator than the husband's (see Table 1), whereas in Study II the pattern was reversed (see Table 4). This finding is also consistent with Uhr's result that in the unhappy couples husbands have moved away from their wives in similarity on the variables studied, whereas the wives did not change. The F-ratios for wife impact on the two studies were similar ($F = 8.62$ in Study I and $F = 9.85$ in Study II), while the F-ratios for husband impact increased ($F = 5.53$ in Study I and $F = 13.48$ in Study II).

The talk-table variables offer a quantitative procedure for the evaluation of therapeutic techniques. However, it is also necessary to collate phenomenology with patterns of behavior exchanged as scored by observers. To accomplish this goal, an interaction category system has been developed to code videotapes of the couple's verbal and nonverbal communication. Coders are currently using this scoring system in a series of studies investigating decision making with and without the talk-table. Several unsuccessful couples in these studies reported that the talk-table enhanced their ability to communicate, while successful couples generally reported that the talk-table hurt their communication. It may be that talk-table data provides a potential therapeutic device as well as a conservative estimate of differences in non-talk-table communication.

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It would also be important to employ Raush's (1972) suggestion of a Markov analysis of sequences of interaction to see if the exchange of specific behavior patterns are consistent with results from the PBE model. For example, is the expressions of feeling, feedback, problem solving or meta communication related to more positive impact or greater reciprocity? If stable differences are found in the probability of specific types of behaviors exchanged, an intervention is suggested. Transition probabilities of specific exchanges could be modified in distressed couples with PBE variables as outcome measures.

To summarize, the two studies presented here test a set of phenomenologically-based behavior exchange models of successful marriage. The results suggest a particular theoretical model of successful marriage and this model is recommended for the evaluation of therapeutic interventions with distressed marriages.

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Footnotes

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[2]The authors wish to thank Ms. Jonni Gonso for devising the "FOOD" rank order task.

[3]In the analyses of the percent of total talk time: (1) For low conflict tasks (NASA, FOOD, TAT, and CHOICE) unsuccessful wives talk 43.25 percent of the time, while successful wives talked 49.35 percent of the time ($F = 3.48$, $df = 1/26$, $p = .07$); (2) For high conflict tasks (IMC, Problem Discussion) there were no differences between the two groups of wives ($F = .008$, $df = 1/26$, $p = .93$). Unsuccessful wives increase their talk to 48.0 percent whereas successful wives do not appreciably change (48.43 percent).

[4]A female staff member of the Mental Health Center rather than a male-female team was used in Study II.

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TABLE 1

Study I, Analyses of Variance - Study I, Intent and Impact as a Likert Scale

Variable	Groups effect F-ratio	Task-effect F-ratio	Group x task F-ratio
Wife intent	.37	.49	1.17
Husband intent	.05	2.29	.39
Wife impact	8.62*	1.02	1.14
Husband impact	5.53*	.28	.59
		Means for impact	
	Successful		Unsuccessful
Wives	3.51		3.22
Husbands	3.52		3.20

*p < .05

**p < .01

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TABLE 2

Principal Components of Impact Data, MRI Scores, and Clinic/Nonclinic Status

Variable	Component I loadings
Wife	
Superminus	-.65
Minus	-.60
Plus	.67
Superplus	.43
MRI	.85
Clinic/Nonclinic	.80
Husband	
Superminus	-.72
Minus	-.82
Plus	.70
Superplus	.30
MRI	.85
Clinic/Nonclinic	.67

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TABLE 3

Conditional Probabilities Over All Tasks for Impact Data

(Study I)

Variable	F-ratio	p-value	unsuccessful mean	successful mean
1. p(W+| H+)	2.94	.09	.22	.32
2. p(H+| W+)	4.95*	.03	.20	.33
3. p(W+| HO)	.26	.62	.13	.15
4. p(HO| W+)	.32	.59	.15	.17
5. p(W+| H-)	1.23	.28	.04	.06
6. p(H-| W+)	.39	.54	.08	.06
7. p(WO| H+)	.07	.79	.12	.13
8. p(H+| WO)	.02	.90	.12	.12
9. p(WO| HO)	.83	.62	.10	.12
10. p(HO| WO)	.21	.65	.11	.13
11. p(WO| H-)	6.64*	.02	.11	.04
12. p(H-| WO)	5.56*	.02	.09	.03
13. p(W-| H+)	.05	.82	.09	.08
14. p(H+| W-)	.00	.05	.07	.07
15. p(W-| HO)	.00	.96	.07	.07
16. p(HO| W-)	2.34	.14	.08	.05
17. p(W-| H-)	7.04*	.01	.12	.03
18. p(H-| W-)	7.88*	.01	.11	.03

*$p < .05$

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TABLE 4

Analyses of Variance - Study II

Impact as a Likert Scale

Variable	Groups effect F-ratio*	Task-effect F-ratio	Group x task F-ratio
Wife impact	3.14	1.74	9.85**
Husband impact	3.10	.79	13.48***

		Means for impact	
		Successful	Unsuccessful
Wives	FOOD	3.46	3.65
	IMC	3.60	3.23
Husbands	FOOD	3.42	3.45
	IMC	3.71	3.25

*df = (1,28)

**p < .005

***p < .002

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TABLE 5

Conditional Probabilities Over All Tasks For Impact Data

(Study II)

Variable	F-ratio	p-value	unsuccessful mean	successful mean
1. p(W+ | H+)	3.96	.05	.29	.42
2. p(H+ | W+)	6.26*	.02	.27	.43
3. p(W+ | HO)	.07	.79	.12	.11
4. p(HO | W+)	.27	.61	.12	.11
5. p(W+ | H-)	1.99	.17	.05	.09
6. p(H- | W+)	.72	.59	.07	.09
7. p(WO | H+)	.23	.64	.12	.14
8. p(H+ | WO)	.09	.76	.12	.14
9. p(WO | HO)	.78	.61	.13	.09
10. p(HO | WO)	1.07	.31	.13	.09
11. p(WO | H-)	3.34	.08	.09	.05
12. p(H- | WO)	.67	.57	.07	.06
13. p(W- | H+)	1.97	.17	.06	.03
14. p(H+ | W-)	.63	.56	.07	.05
15. p(W- | HO)	1.51	.23	.06	.04
16. p(HO | W-)	1.67	.20	.05	.03
17. p(W- | H-)	5.06*	.03	.09	.03
18. p(H- | W-)	9.25*	.005	.08	.02

*p < .05

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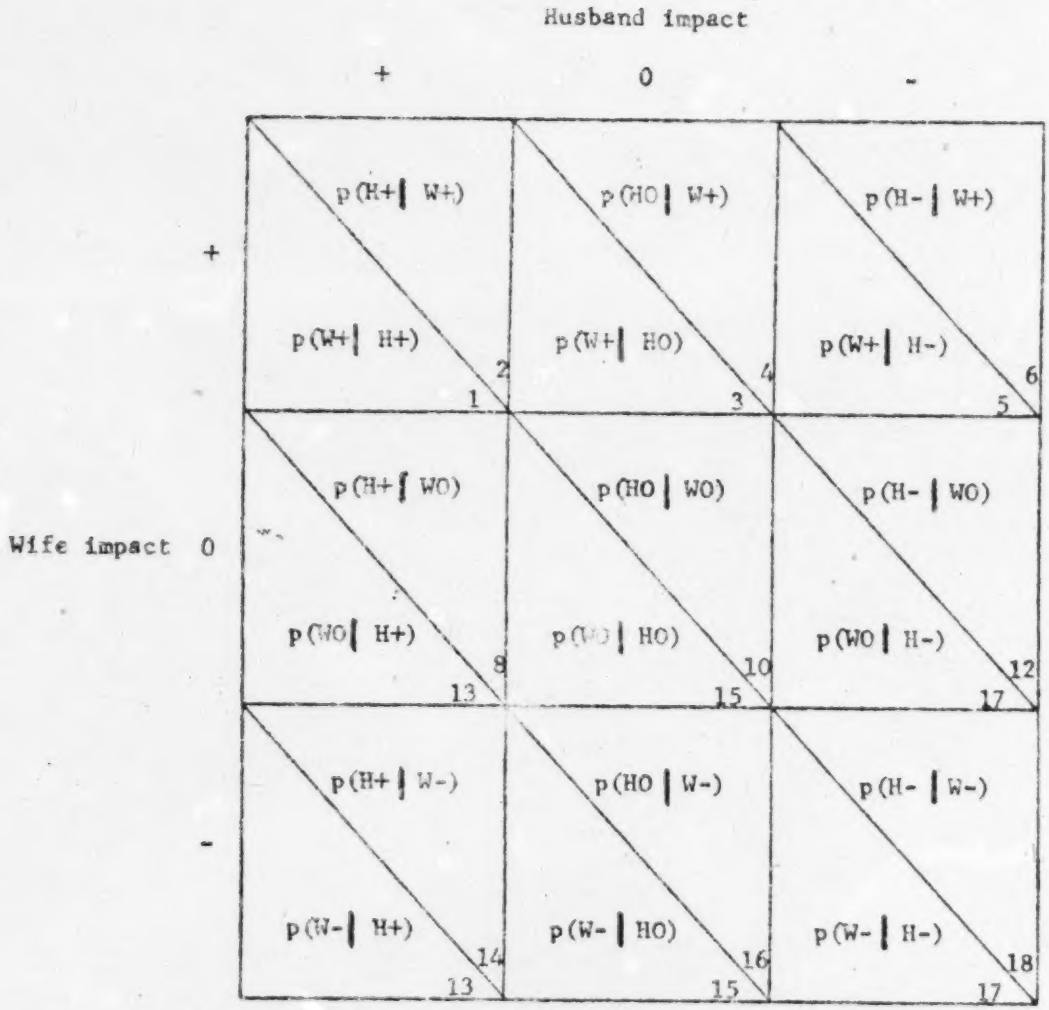

Figure 1. Conditional Probabilities in the Talk-Table

PBE Markov Matrix